EMSL Analytical, Inc.

107 Haddon Avenue, Westmont, NJ 08108
Phone: (856) 858-4800

Materials Science Division

Attn.: *Robert Vasquez*
County of Los Angeles
1100 North Eastern Avenue
Los Angeles, CA 90063

Phone: 323-267-2256 Fax: 323-267-2482

EMSL Case No.: 360500955
Sample(s) Received: 10/1/05
Date of Analysis: 10/6/05
Date Printed: 10/7/05
Reported By: E. Mirica

- Laboratory Report -

Full Particle Identification©

For

Project: Santa Monica Airport Black Dust Sampling

Analyzed by: *Eugenia Mirica, Ph.D.*
Materials Scientist
October 6, 2005
Date

QA/QC : *John Newton*
Laboratory Manager
October 6, 2005
Date

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Conclusions:

- Samples 01 and 02 were found to contain mostly mold, along with construction and rubber dust.
- Sample 03, 04, and 05 contain a relatively high concentration of rubber and construction dust. Carbon black was detected in all samples.

Procurement of Samples and Analytical Overview:

The samples for analysis arrived at EMSL Analytical's corporate laboratory in Westmont, NJ on October 1, 2005. The package arrived in satisfactory condition with no evidence of damage to the contents. The samples were submitted for the purpose of determining the identification of the individual components. The sample reported herein has been analyzed using the following equipment and methodologies.

Methods & Equipment:

Polarized Light Microscopy (PLM)
epi-Reflected Light Microscopy (RLM)
Scanning Electron Microscopy (SEM)
Transmission Electron Microscopy (TEM)
Energy-dispersive X-Ray Spectrometry (EDX

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Results and Discussion:

Sample #: **SM 01** ***Description:*** **Yard, 12146 Clarkson, LA**

Nuisance Particulate:		(%)	**Biological Particulate:**		(%)
Asbestos:	(T)	ND	Mold:	(Total)	68
MMVF's:	Fibrous Glass	ND	Pollen:	(Total)	<1
	Mineral Wool	ND	Diatoms:	(Total)	ND
	Ceramic Fibers	ND	Insect Fragments:	(Total)	ND
Glass:	Fragments	ND			

Common Particulate:		(%)			(%)
Cellulosic:	Processed	2		Iron Oxides (Rust)	1
	Natural	ND		Aluminum Oxide	ND
	Wood	ND		Zinc Oxide	ND
	Paper Pulp	ND		Paint Fragments	<1
	Starch	ND		Quartz	5
Synthetic:	Nylon	ND		Calcite/ Dolomite	2
	Polyester	ND		Gypsum/ Anhydrite	ND
				Clay	5
	Human Hair	ND		Plaster	ND
	Animal Hair	ND		Mica	3
	Skin Fragments	2			
Unidentified:	Inert Organics	2	Unidentified:	Inorganics	2

Additional Particulate:	
Rubber dust	5
Carbon Black	1

LOD: ~1%

The particles included in the Unidentified Inert Organics category consist of particles with carbon-based composition. They are inert (they do not react with the surrounding media) and they could not be isolated for individual identification by Fourier Transform Infrared Spectroscopy. A more descriptive term might be "Organic Dust", which may include degraded skin fragments, carbon black particles, cellulosic or polymeric remnants, etc.

The particles included in the Unidentified Inorganics category consist of particles that do not have carbon as main component. They are usually a mixture of substances and they could not be isolated for individual identification by PLM, SEM/EDX, and X-Ray Diffraction.

The carbon black concentration given in the tables is for carbon black that originates solely from incomplete burning of hydrocarbon compounds. Rubber dust is known to also contain carbon black; however, this type of carbon black cannot be analyzed by the methods used in this analysis and is included in the rubber dust concentration.

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Sample #: **SM 02** ***Description: SFO/Sidewalk, Almacost & Sardis St, LA.***

Nuisance Particulate:		(%)	**Biological Particulate:**		(%)
Asbestos:	(T)	ND	Mold:	(Total)	50
MMVF's:	Fibrous Glass	ND	Pollen:	(Total)	<1
	Mineral Wool	ND	Diatoms:	(Total)	ND
	Ceramic Fibers	ND	Insect Fragments:	(Total)	ND
Glass:	Fragments	ND			

Common Particulate:		(%)		(%)
Cellulosic:	Processed	7	Iron Oxides (Rust)	2
	Natural	ND	Aluminum Oxide	ND
	Wood	ND	Zinc Oxide	ND
	Paper Pulp	ND	Paint Fragments	ND
	Starch	ND	Quartz	7
Synthetic:	Nylon	ND	Calcite/ Dolomite	2
	Polyester	ND	Gypsum/ Anhydrite	ND
			Clay	5
	Human Hair	ND	Plaster	ND
	Animal Hair	ND	Mica	10
	Skin Fragments	2		
Unidentified:	Inert Organics	2	Unidentified: Inorganics	3

Additional Particulate:		
	Rubber dust	7
	Carbon Black	2

LOD: ~1%

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Sample #: **SM 03** ***Description: SFO/Sidewalk, 4600 Centinela, LA***

Nuisance Particulate:		(%)	**Biological Particulate:**		(%)
Asbestos:	(T)	ND	Mold:	(Total)	7
MMVF's:	Fibrous Glass	ND	Pollen:	(Total)	ND
	Mineral Wool	ND	Diatoms:	(Total)	ND
	Ceramic Fibers	ND	Insect Fragments:	(Total)	ND
Glass:	Fragments	ND			

Common Particulate:		(%)			(%)
Cellulosic:	Processed	2		Iron Oxides (Rust)	2
	Natural	ND		Aluminum Oxide	ND
	Wood	ND		Zinc Oxide	ND
	Paper Pulp	ND		Paint Fragments	ND
	Starch	ND		Quartz	25
Synthetic:	Nylon	ND		Calcite/ Dolomite	15
	Polyester	ND		Gypsum/ Anhydrite	ND
				Clay	7
	Human Hair	ND		Plaster	ND
	Animal Hair	ND		Mica	7
	Skin Fragments	ND			
Unidentified:	Inert Organics	2	Unidentified:	Inorganics	3

Additional Particulate:		
	Rubber dust	25
	Carbon Black	5

LOD: ~1%

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Sample #: **SM 04** ***Description: SFO/Sidewalk, Navy & 23rd St, LA***

Nuisance Particulate:		(%)	**Biological Particulate:**		(%)
Asbestos:	(T)	ND	Mold:	(Total)	30
MMVF's:	Fibrous Glass	ND	Pollen:	(Total)	<1
	Mineral Wool	ND	Diatoms:	(Total)	ND
	Ceramic Fibers	ND	Insect Fragments:	(Total)	ND
Glass:	Fragments	ND			

Common Particulate:		(%)			(%)
Cellulosic:	Processed	2		Iron Oxides (Rust)	<1
	Natural	ND		Aluminum Oxide	ND
	Wood	ND		Zinc Oxide	ND
	Paper Pulp	ND		Paint Fragments	ND
	Starch	ND		Quartz	15
Synthetic:	Nylon	ND		Calcite/ Dolomite	2
	Polyester	ND		Gypsum/ Anhydrite	ND
				Clay	5
	Human Hair	ND		Plaster	ND
	Animal Hair	ND		Mica	5
	Skin Fragments	1			
Unidentified:	Inert Organics	2	Unidentified:	Inorganics	3

Additional Particulate:		
	Rubber dust	30
	Carbon Black	3

LOD: ~1%

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Sample #: **SM 05** ***Description: SFO/Sidewalk, 21st St. & Navy, LA***

Nuisance Particulate:		(%)	**Biological Particulate:**		(%)
Asbestos:	(T)	ND	Mold:	(Total)	5
MMVF's:	Fibrous Glass	ND	Pollen:	(Total)	<1
	Mineral Wool	ND	Diatoms:	(Total)	ND
	Ceramic Fibers	ND	Insect Fragments:	(Total)	ND
Glass:	Fragments	ND			

Common Particulate:		(%)			(%)
Cellulosic:	Processed	2		Iron Oxides (Rust)	<1
	Natural	ND		Aluminum Oxide	ND
	Wood	ND		Zinc Oxide	ND
	Paper Pulp	ND		Paint Fragments	ND
	Starch	ND		Quartz	35
Synthetic:	Nylon	ND		Calcite/ Dolomite	7
	Polyester	ND		Gypsum/ Anhydrite	ND
				Clay	5
	Human Hair	ND		Plaster	ND
	Animal Hair	ND		Mica	10
	Skin Fragments	1			
Unidentified:	Inert Organics	2	Unidentified:	Inorganics	4

Additional Particulate:	
Rubber dust	25
Carbon Black	2

LOD: ~1%

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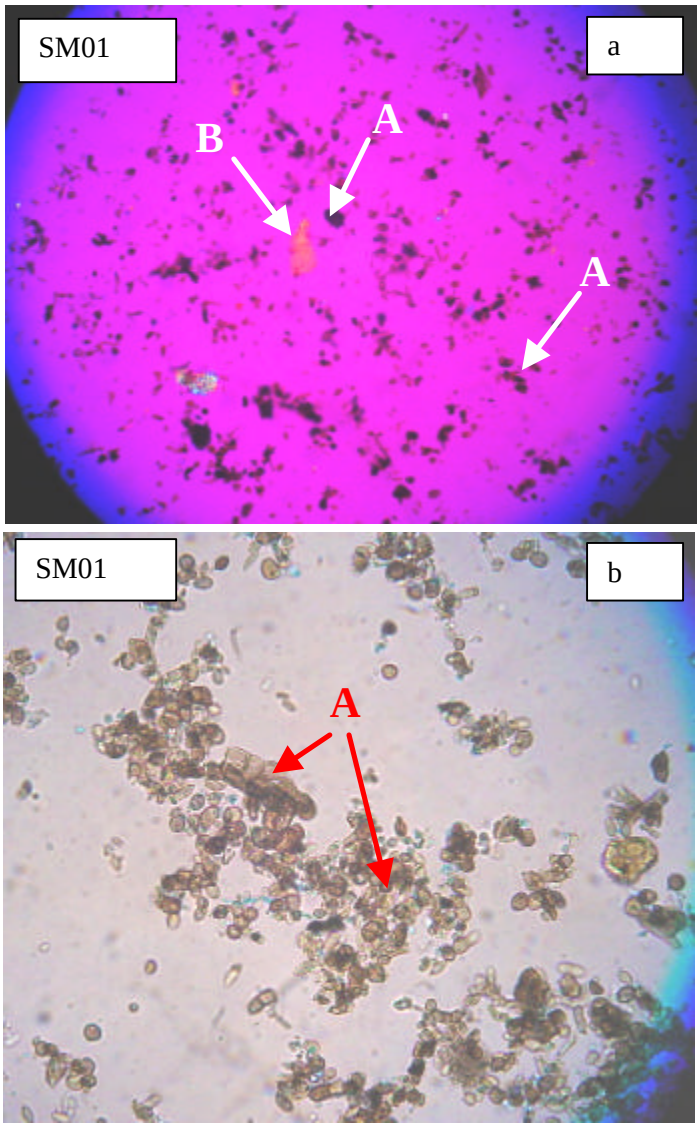

Figure 1. PLM micrograph of particles detected in sample SN01 showing the presence of mold as the main component (a: ~310x, b: 500x)
A: Mold
B: Quartz

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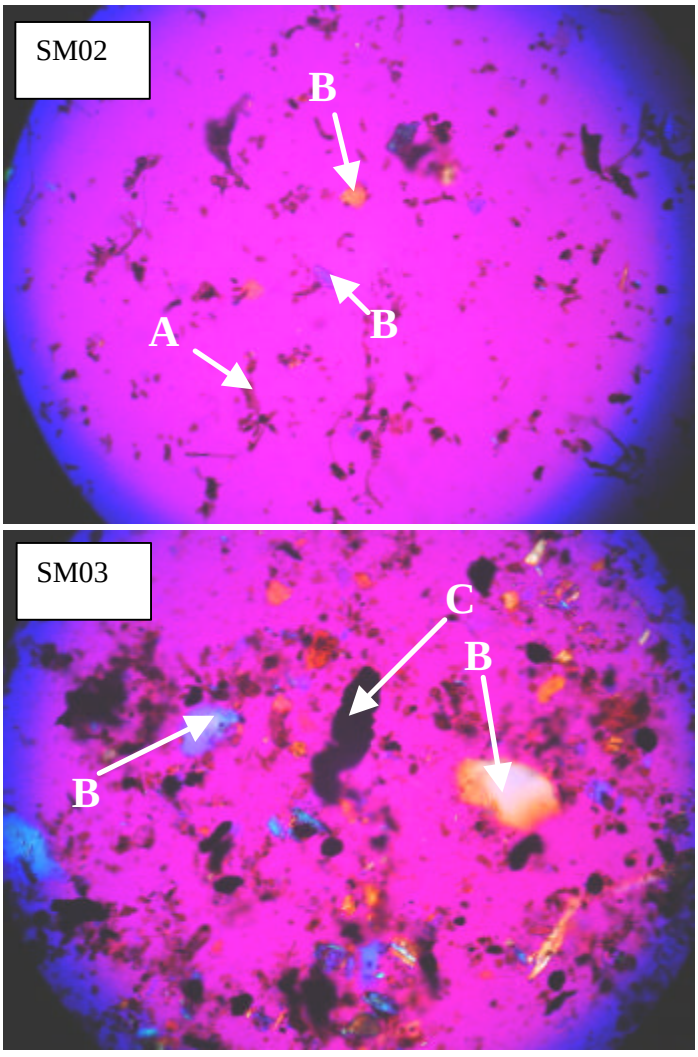

Figure 2. PLM micrograph of particles detected in samples SN02 and SN03 (~310x)
A: Mold
B: Quartz
C: Mixture of rubber dust, clays, and carbon black

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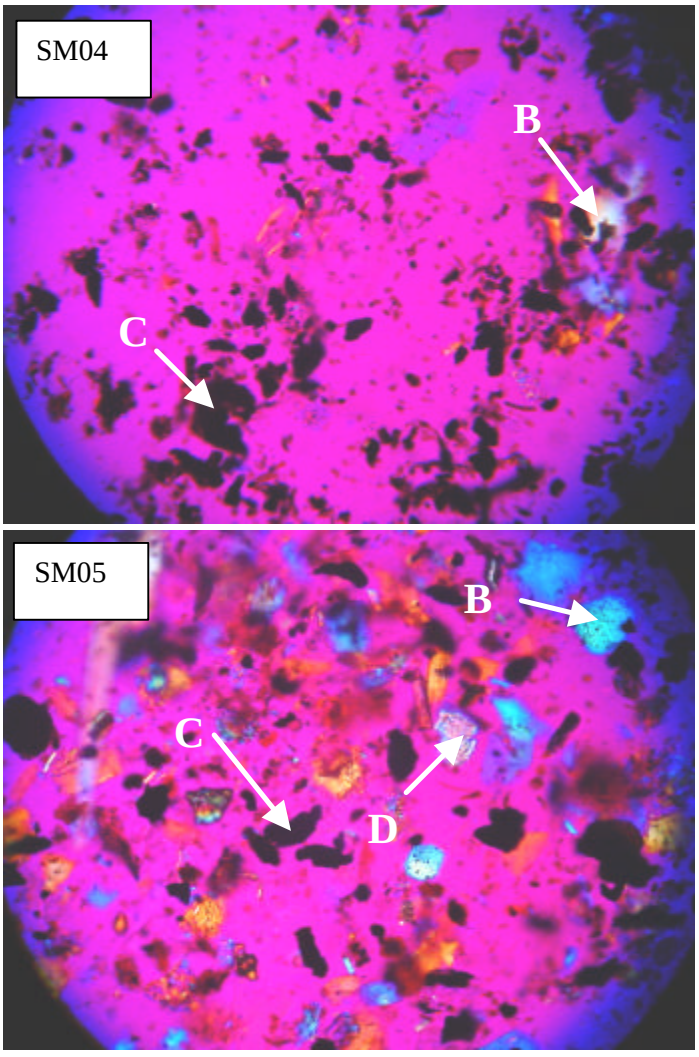

Figure 3. PLM micrograph of particles detected in samples SN04 and SN05 (~310x).
B: Quartz
C: Mixture of rubber dust, clays, and carbon black
D: Calcite

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Descriptions & Definitions:

None Detected (ND) denotes the absence of an analyte in the subsample analyzed. Trace levels of the analyte may be present in the sample below the limit of detection (LOD).

Limit of Detection (LOD): The minimum concentration that can be theoretically achieved for a given analytical procedure in the absence of matrix or sample processing effects. Particle analysis is limited to a single occurrence of an analyte particle in the sub-sample analyzed.

Limit of Quantitation (LOQ): The minimum concentration of an analyte that can be measured within specified limits of precision and accuracy during routine laboratory operating conditions

Concentrations for bulk samples are derived from Visual Area Estimation (VAE) unless otherwise noted. Air sample concentrations are calculated to particles per unit volume.

VAE technique estimates the relative projected area of a certain type of particulate from a mixture of particulate by comparison to data derived from analysis of calibration materials having similar texture and particulate content. Due to bi-dimensional nature of the measurements, in some cases the particle thickness could affect the results.